PATENT ABSTRACTS OF JAPAN

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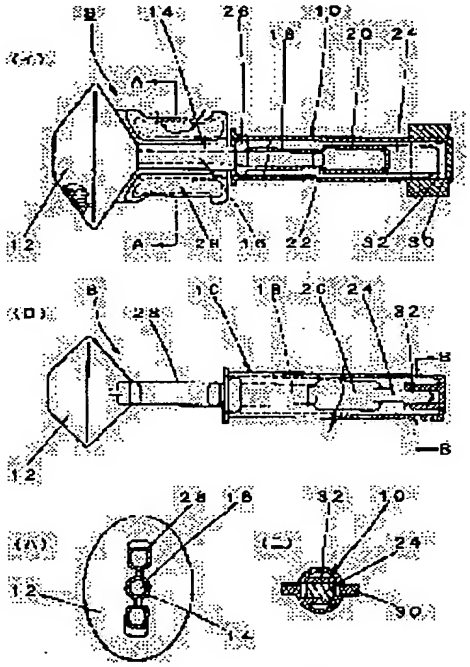
(54) LIQUID CONTAINER WITH CAP

(57)Abstract:
PROBLEM TO BE SOLVED: To open a thin thickness part under aseptic condition in a liq. container wherein a projection for guiding out a content liq. for feeding the content liq. into another container is formed and the thin thickness part of the projection is twisted away to make opening the seal possible.
SOLUTION: In a liq. container 8 wherein a thin thickness part 22 is formed near the apex part of a projection 14 for guiding out a content liq. for guiding the content liq. in a container main body part 12 and a grip part for twisting (a plate-like projection 24) is disposed at the apex part, a cap 10 for at least covering the apex part of the projection 14 contg. the thin thickness part 22 and sealing it and a hooking part (a pinching hooking part 32) for transmission for transmitting a twisting force to the grip for twisting (the plate-like projection 24) disposed at the apex part of the projection 14 on the inside of the cap 10 is formed and the thin thickness part 22 is twisted off by twisting the cap 10 to open the projection 14.



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* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]
[Claim 1] The projected part for contents liquid derivation which has the circulation way which can circulate contents liquid protrudes on the body section of a container which has flexibility. And it sets to the liquid container with which the grasping section for torsion for twisting off the thin-walled part and this thin-walled part which may be made to open by twisting off was formed near the point of said projected part. The cap which covers near the whole projected part point containing said thin-walled part at least, and seals it is arranged. And the liquid container with a cap characterized by making chasing of a thin-walled part possible by preparing the engagement section for transfer which engages with the cap inside at said grasping section for torsion, and can tell a torque, and twisting a cap.
[Claim 2] It is the liquid container with a cap which is the pinching engagement section equipped with one pair of plate-like parts arranged by said grasping section for torsion being a tabular projected part which protruded at the tip of said projected part in a liquid container with a cap according to claim 1, and said engagement section for transfer separating the clearance which can pinch the engagement crevice in which the crevice into which said tabular projected part can get was formed, or said tabular projected part.
[Claim 3] The liquid container with a cap with which the over packing room which makes the up space for holding the air in superfluous contents liquid and contents liquid in a tip side from the thin-walled part of said projected part for contents liquid derivation in claim 1 or a liquid container with a cap according to claim 2 is formed.
[Claim 4] The liquid container with a cap with which the attaching part for hanging a finger on the side of the end face section approach part of said projected part is formed in the liquid container with a cap given in any 1 term of claim 1 thru/or claim 3.
[Claim 5] It is the liquid container with a cap with which the outer size of a part which has the circulation way which said attaching part makes a pair in a liquid container with a cap according to claim 4 with the same thickness dimension as the both sides of the end face section approach part of said projected part, and is prepared, and is located among both attaching parts, and the thickness dimension of both attaching parts spread abbreviation etc. and which is carried out.
[Claim 6] It is the liquid container with a cap with which, as for said attaching part, the interior is made hollow in claim 4 or a liquid container with a cap according to claim 5.
[Claim 7] The opening edge of a cap is a liquid container with a cap with which the wrap is not blockaded in the whole projected part point in which said cap contains said thin-walled part in a liquid container with a cap given in any 1 term of claim 1 or claim 6 and it is [liquid container] a thing.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] About the flexible liquid container for pouring contents liquid into others, this invention relates to the liquid container it enabled it to open by the aseptic condition at the time of use while protecting the projected part for contents liquid derivation of the body section of a container especially. This invention is effective, especially if it is used when other drug solutions are injected in mix for example, at the time of infusion solution administration.
[0002]
[Description of the Prior Art] In order to pour contents liquid into others conventionally, although the projected part for contents liquid derivation of the liquid container which enabled it to connect a hypodermic needle and a duct is made to be opened when it is blockaded by the point and the projected part itself twists off, it is usually. For example, the syringe of JP,8-299437,A etc. corresponds to this.
[0003]
[Problem(s) to be Solved by the Invention] However, although such a container usually sterilizes after restoration of contents liquid and container external surface is made to become sterile, when a threading opened the time of picking out a container from an wrapping material at the time of use, and a container projected part, the finger touched the part which connects the hypodermic needle by the side of a container projected part tip etc., and there was a trouble that there was a possibility that it may be polluted with bacteria etc. Moreover, there was a trouble that the part which the above-mentioned wrapping material is damaged and connects said hypodermic needle etc. at the time of transportation of a container and storage was polluted. This invention is made against the background of such a situation, and the purpose of this invention is offering the liquid container which can prevent contamination by bacteria etc. as cannot touch a finger at the part which connects said hypodermic needle etc. at the time of the use to which a threading's opens a container projected part, and transportation and storage.
[0004]
[Means for Solving the Problem] This invention made in order to attain such a purpose is constituted as follows.
A The projected part for contents liquid derivation which has the circulation way which can circulate contents liquid protrudes on the body section of a container which has flexibility. And it sets to the liquid container with which the grasping section for torsion for twisting off the thin-walled part and this thin-walled part which may be made to open by twisting off was formed near the point of said projected part. The cap which covers near the whole projected part point containing said thin-walled part at least, and seals it is arranged. And the liquid container with a cap characterized by making chasing of a thin-walled part possible by preparing the engagement section for transfer which engages with the cap inside at said grasping section for torsion, and can tell a torque, and twisting a cap.
B It is the liquid container with a cap which is the pinching engagement section equipped with one pair of plate-like parts arranged by said grasping section for torsion being a tabular projected part which protruded at the tip of said projected part in a liquid container with a cap given [said] in A term, and said engagement section for transfer separating the clearance which can pinch the engagement crevice in which the crevice into which said tabular projected part can get was formed, or said tabular projected part.
C The liquid container with a cap with which the over packing room which makes the up space for holding the air in superfluous contents liquid and contents liquid in a tip side from the thin-walled part of said projected part for contents liquid derivation in said A term or a liquid container with a cap given in B term is formed.
D The liquid container with a cap with which the attaching part for hanging a finger on the side of the end face section approach part of said projected part is formed in the liquid container with a cap given in any 1 term of said A term thru/or C term.
E It is the liquid container with a cap with which the outer size of a part which has the circulation way which said attaching part makes a pair in a liquid container with a cap given [said] in D term with the same thickness dimension as the both sides of the end face section approach part of said projected part, and is prepared, and is located among both attaching parts, and the thickness dimension of both attaching parts spread abbreviation etc. and which is carried out.
F It is the liquid container with a cap with which, as for said attaching part, the interior is made hollow in a liquid container with a cap given in said D term or E term.
G The opening edge of a cap is a liquid container with a cap with which the wrap is not blockaded in the whole projected part point in which said cap contains said thin-walled part in a liquid container with a cap given in any 1 term of said A term - F term and it is [liquid container] a thing.
[0005]
[Embodiment of the Invention] The gestalt of implementation of invention is explained to a detail based on the drawing which indicated the example of this invention below. Drawing 1 R> 1 is expanding and illustrating the drug solution container of an example. In this drawing, 8 is a drug solution container as a liquid container, and 10 is a cap. Plastics is

consisted of by one, the projected part 14 for contents liquid derivation to which a point makes the tubed part of a ** with a stage protrudes on the end side of the body section 12 of a container which holds a drug solution, and the liquid container 8 is opened for free passage by the circulation way 16 which penetrates the interior at the drug solution hold section in the body section 12 of a container. While the tubed part of said ** with a stage consists of the 1st tubed part 18 of the shape of a taper it was made for a path to become thin, and the 2nd tubed part 20 with a larger path than the point of the 1st tubed part 18 so that it approaches a point, the thin-walled part 22 which thickness is made thin in the configuration which was a little narrow, and can twist off the boundary line of both the tubed parts 18 and 20 is formed. Furthermore, while the point of the 2nd tubed part 20 is blockaded, the tabular projected part 24 as the grasping section for torsion protrudes at the tip of an outside. In addition, the joggle 26 of the shape of a ring with a larger path than the 2nd tubed part 20 is formed in the end face section of the 1st tubed part 18.

[0006] And the attaching part 28 of one pair of predetermined width of face is formed in the both sides of the part of the end face approach of a projected part 14 at one, and the pars intermedia of attaching part 28 outside is making the configuration where it withdrew a little from attaching part both ends. An attaching part 28 receives the charge of a finger at the time of use, and the force is made easy to apply and it has work of making use easy. the outside width method of a part, as for an attaching part 28, it is located among both the attaching parts 28 of a projected part 14 while the interior makes hollow as shown in drawing 1 (Ha) -- the thickness (width of face) dimension of both the attaching parts 28, and abbreviation -- it is supposed that it is the same. Thus, by making an attaching part 28 hollow, it comes to have several minutes or elasticity and there is an advantage that a hit of a hand becomes soft at the time of use. Moreover, there is an advantage of becoming easy to stick when these both sides become near evenly and stick a product label etc. by things making it be a **** [the dimension of the projected part between an attaching part 18 and both the attaching parts 18]. In addition, thickness is made thin as the part to which both the attaching parts 28 touch the periphery section of a projected part 14 is shown in drawing 1 (Ha).

[0007] Thickness is made thin so that it may have flexibility, and the body section 12 of a container is forced toward the point side of a projected part 14, and it enables it to retract it with a finger. In addition, although the drug solution container 8 is filled up with a drug solution at the time of manufacture, it enables it to discharge contents liquid by crushing the body section 12 of a container with a finger. He is trying, as for the body section 12 of a container, for a package not to be bulky if possible, as the cross section cannot roll the shape of an ellipse easily on nothing and a desk. Furthermore, although the base of the body section 12 of a container is making the shape of flatness, he is trying for the dimension in every direction for a bottom surface part to turn into about 10 - 40% of the dimension of the maximum part of the body section of a container in every direction, respectively. Thereby, in case the body section 12 of a container is pushed and crushed with a finger, since a base has the flat part of sufficient size, it has the advantage that a finger does not hurt. Manufacture of a drug solution container can often be carried out by the aseptic condition by the so-called blow philharmonic seal method for performing shaping of a container, restoration of a drug solution, and **** continuously.

[0008] Cap 10 the very thing is made easy to make cap 10 easy to consist of plastics, for an end to be the member of the shape of a cylinder which carried out opening, as shown in drawing 1 , to form the projected part 30 for torsion in an other end side, while a flange is formed in an opening edge periphery, and to grasp with a finger, and to twist on the other hand. Furthermore, inside cap 10, the pinching engagement section 32 as the engagement section for transfer is formed, it connects with the tabular projected part 24, and a torque may be told by the thin-walled part 22. As shown in drawing 1 (b), one pair of plate-like parts separate spacing, and are arranged, and the pinching engagement section 32 may have the tabular projected part 24 pinched. Cap 10 has the bore which is extent into which joggle 26 can fit, and is attached in the condition of having covered and sealed the 1st tubed part 18, the 2nd tubed part 20, and the tabular projected part 24, by inserting joggle 26 in the opening edge inside. In this way, as for the interior of cap 10, invasion of the bacteria from the outside, a pollutant, etc. is intercepted till use. In addition, let fitting to the joggle 26 of cap 10 be pivotable extent mutually. Therefore, if cap 10 is twisted, the tabular projected part 24 is twisted through the pinching engagement section 32, a thin-walled part 22 is twisted off, and the contents liquid in the drug solution container 8 will be in the condition that it may flow out outside.

[0009] Although it fills up with a drug solution in the drug solution container 8, as shown in drawing 2 , when it stands by turning a projected part 14 side up, it enables it to hold the air in superfluous contents liquid and contents liquid in the 2nd tubed part 20, and the 2nd tubed part 20 is making the so-called over packing room.

[0010] the drug solution container of the example constituted as mentioned above grasps an attaching part 28 with a finger, after standing a projected part 14 upwards, as shown in the drawing 2 (**), and if cap 10 is twisted as shown in the drawing 2 (**), a thin-walled part 22 should twist it off -- if cap 10 is removed as shown in drawing 2 (Ha) since a circulation way is opened, it will be in the condition that a hypodermic needle etc. can be attached in the 1st tubed part 18. A hypodermic needle will be inserted in the regio oralis of an infusion solution container (illustration abbreviation), and subsequently, the body section 12 of a container is gathered by the digiti manus etc., and if it crushes as shown in the drawing 2 (**), contents liquid (drug solution) will flow out in an infusion solution container, and will be blended with an infusion solution. When blending a drug solution in an intravenous drip circuit, since the by-pass of an intravenous drip circuit etc. is stabbed with a hypodermic needle, contents liquid (drug solution) is poured in by the same point as the following, and it is blended. Moreover, in feeding contents liquid through a duct, after inserting the 1st tubed part 18 in a duct and connecting, it feeds by the same point.

[0011] In the above-mentioned example, the projected part 14 containing a thin-walled part 22 is covered with cap 10, and since it is sealed, it has the advantage which can prevent damaging at the time of storage etc. or being polluted with bacteria etc. at the time of transportation. Moreover, since a threading makes a projected part 14 open a thin-walled part 22 through cap 10 Since there is an advantage to which a direct finger does not touch at the time of opening, and the part (part which stands in a row in a thin-walled part 22) which connects a hypodermic needle and a duct can prevent contamination by bacteria etc. and a part for a tip flank is made more nearly further than the thin-walled part 22 of a projected part 14 into the over packing room Since the air in contents liquid is removed in the thin-walled part 22 when a threading opens a projected part 14, in case a hypodermic needle and a duct are connected, there is an advantage from

which the time and effort except the air in liquid becomes unnecessary, and use becomes easy beforehand. Furthermore, attaching parts 28 are the following effectiveness. That is, when it carries out to an attaching part 28 by hanging a finger the time of twisting cap 10, when [as shown in drawing 2 (Ha),] a thin-walled part 22 connects a hypodermic needle, a duct, etc. to the 1st tubed part 18 in the condition that the point is removed from threading ******, or in crushing the body section 12 of a container as shown in drawing 2 (d) as shown in the drawing 2 (**), there is an advantage that this activity can carry out very easily.

[0012] The plastics with which the drug solution container was admitted as a medical-application container like this conventional seed container is used. Especially polyolefines, such as polyethylene and polypropylene, are desirable at that the moldability is excellent and the point which safety has established. In addition to the homopolymer of ethylene, as the above-mentioned polyethylene, a copolymer with alpha olefins, such as a propylene, 1-butene, 4-methyl-1-pentene, and octene, is also usable. Moreover, this copolymer may be a straight chain-like, or may be branched-chain, or any are sufficient as it. Polyethylene does not ask whether it is high-density or it is a low consistency, but can choose it from the large range suitably. Moreover, as the above-mentioned polypropylene, a copolymer with the olefin of small quantity (generally 10 or less % of the weight, preferably 5 or less % of the weight), such as a homopolymer or ethylene, and 1-butene, is available, and it is suitable to use the thing of the grade currently used widely as a medical-application container. Furthermore, styrene system copolymers, such as annular olefin copolymers, such as an ethylene tetracyclo dodecen copolymer, and a styrene ethylene butylene styrene block copolymer, are also employable as polyolefines, such as poly1 butene and poly4 methyl 1 pentene, and a pan suitably. The above-mentioned polyolefine may be used independently or may be used as mixed resin or multilayer molding. If needed, protection-from-light nature can be given or aluminum and silica vacuum evaporationo processing can also be performed. A cap may use a drug solution container and plastics of the same kind.

[0013] It is not limited especially as drugs held in a drug solution container. For example, in addition to solutions, such as a physiological salt solution and distilled water, vitamin liquid, trace element pharmaceutical preparation liquid, lipid microsphere liquid, the calcium chloride solution for amendment, etc., the liquid of drugs, such as hormone drugs, such as peptic ulcer agents, such as cardiotonic, such as alleviation-of-fever painkilling antiphlogistics, such as sedative, such as the whole body, such as anticoagulants, such as heparin sodium liquid, pentobarbital, and procaine hydrochloride, or local anesthetic, and a calcium bromide, and sodium salicylate, and dopamine hydrochloride, and nicardipine hydrochloride, and hydrocortisone sodium phosphate, can be illustrated.

[0014] It is also possible to stop this by the above-mentioned example, although the over packing room which consists of the 2nd tubed part is prepared. Moreover, although the opening edge of cap 10 is inserted in joggle 26 and the inside of cap 10 is sealed in the example, the 2nd tubed part 20 is stopped, cap 10 is inserted in a point side from the thin-walled part 22 of a projected part 14, and a wrap is possible also for making it the opening edge of cap 10 not blockade a thin-walled part 22. Also in this case, it is effective in protecting a thin-walled part 22 from breakage etc. at the time of transportation and storage. Moreover, in the above-mentioned example, although the chasing mail-opener style with cap 10 is based on engagement in the tabular projected part 24 and the pinching engagement section 32 of the cap 10 inside which were prepared in the thin-walled part 22 approach point side of the projected part 14 for contents liquid derivation, the approach of replacing with this and fixing the inside of cap 10 and said point of the projected part 14 for contents liquid derivation for ** with adhesives etc. can also be used for it. Furthermore, the body section of a container of the above-mentioned example is not limited to the thing of the configuration shown in drawing 1 , but if contents liquid can be discharged by crushing with a finger, it can adopt various configurations and structure. Moreover, the container of this example is not limited to a drug solution, but also when holding other liquids blended at the time of use, it can be used. For example, it is usable when holding the adhesives of 2 acidity or alkalinity blended at the time of use. Although the example of this invention was explained above, as for this invention, it is needless to say that it can carry out in the mode which becomes various in the range which is not limited to such an example at all and does not deviate from the summary of this invention.

[0015]

[Effect of the Invention] Since this invention is constituted as mentioned above, the effectiveness indicated below is done so. It can prevent that near the point of the projected part which should insert and connect a hypodermic needle, a duct, etc. is polluted with bacteria etc. at the time of transportation and storage by covering and sealing near the point of the projected part containing the thin-walled part of the projected part for contents liquid derivation with a cap. Moreover, since a thin-walled part is covered with a cap, it is protected from a thin-walled part being damaged in the time of transportation etc. Furthermore, since a threading makes the thin-walled part of a projected part open from the outside of a cap, a finger does not describe the projected part which should insert and connect a hypodermic needle, a duct, etc. of a container at the time of opening, contamination by bacteria etc. is prevented, it is sanitary and safety improves. Moreover, when a threading makes a projected part open by the thin-walled part by considering as the over packing room which has the space section which can hold the air in superfluous contents liquid and contents liquid for the part by the side of a tip from the thin-walled part of a projected part, since the air in contents liquid is removed, in case a hypodermic needle and a duct are connected, beforehand, the activity except the air in liquid becomes unnecessary, and use becomes easy. Use is easy to add weak to it being easy the time of opening, and after opening at the time of connection of a hypodermic needle etc. by preparing the attaching part which can hang a finger on the side of the part of the end face section approach of said projected part further again. Moreover, if it carries out, the outside becomes abbreviation flatness-like and has the advantage whose abbreviation etc. spreads the outer size of the projected part between the attaching parts which make a pair, and the thickness dimension of both attaching parts of becoming easy to stick a product label etc. Furthermore, there is an advantage that a hit of a hand becomes soft with hollow, then elasticity at the time of use about an attaching part.

[Translation done.]

* NOTICES *

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] (b) - (d) are the front view which fractured the part which shows one example of this invention, a top view, an A-A sectional view in this drawing (b), and a B-B sectional view in this drawing (b).
[Drawing 2] (b) - (d) are the explanatory views showing the busy condition of this example.
[Description of Notations]
8 Drug Solution Container (Liquid Container)
10 Cap
12 Body Section of Container
14 Projected Part for Contents Liquid Derivation
16 Circulation Way
18 1st Tubed Part
20 2nd Tubed Part
22 Thin-walled Part
24 Tabular Projected Part (Grasping Section for Torsion)
28 Attaching Part
30 Projected Part for Torsion
32 Pinching Engagement Section (Engagement Section for Transfer)

[Translation done.]

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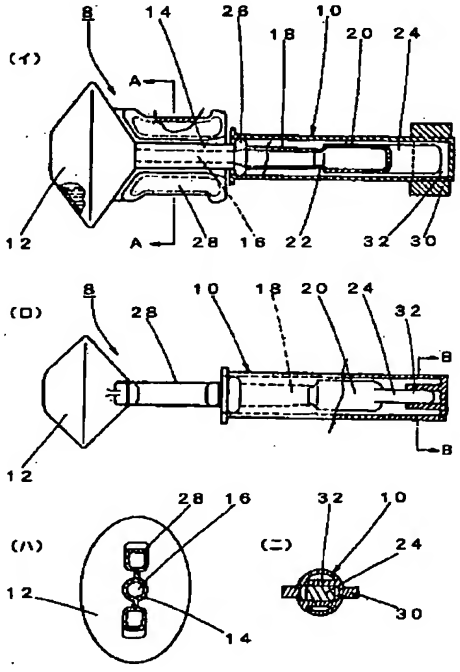
(54)【発明の名称】　キャップ付き液体容器

(57)【要約】
【課題】　内容液を他に注入するための内容液導出用突部を有し、かつ該突部の薄肉部をねじ切ることにより開封可能とした液体容器において、薄肉部を無菌状態で開封できるようにした液体容器を提供する。
【解決手段】　容器本体部１２の内容液を導くための内容液導出用突部１４の先端部寄りに薄肉部２２を形成すると共に先端部にねじり用把持部（板状突部２４）を設けた液体容器８において、薄肉部２２を含む突部１４先端側を少なくとも覆って密封するキャップ１０を設け、かつキャップ１０の内側には前記突部１４の先端部に設けたねじり用把持部（板状突部２４）にねじり力を伝え得る伝達用係合部（挟持係合部３２）を設け、キャップ１０をねじることにより薄肉部２２をねじ切って突部１４を開封できるように構成した。



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【特許請求の範囲】

【請求項１】　可撓性を有する容器本体部に、内容液の流通可能な流通路を有する内容液導出用突部が突設され、かつ前記突部の先端部付近にはねじ切ることにより開封させ得る薄肉部と該薄肉部をねじ切るためのねじり用把持部が形成された液体容器において、前記薄肉部を含む突部先端部付近全体を少なくとも覆って密封するキャップを配置し、かつキャップ内側には前記ねじり用把持部に係合してねじり力を伝え得る伝達用係合部を設け、キャップをねじることにより薄肉部をねじ切り可能としたことを特徴とするキャップ付き液体容器。

【請求項２】　請求項１記載のキャップ付き液体容器において、前記ねじり用把持部は前記突部の先端に突設された板状突部であり、前記伝達用係合部は前記板状突部が嵌り得る凹部が形成された係合凹部あるいは前記板状突部を挟持し得る隙間を隔てて配置された１対の板状部を備えた挟持係合部であるキャップ付き液体容器。

【請求項３】　請求項１もしくは請求項２記載のキャップ付き液体容器において、前記内容液導出用突部の薄肉部より先端側に過剰の内容液と内容液中の空気とを収容するための上部空間をなす過剰充填室が形成されているキャップ付き液体容器。

【請求項４】　請求項１ないし請求項３のいずれか１項に記載のキャップ付き液体容器において、前記突部の基端部寄り部分の側方に指を掛けるための保持部が形成されているキャップ付き液体容器。

【請求項５】　請求項４記載のキャップ付き液体容器において、前記保持部は前記突部の基端部寄り部分の両側に同じ厚さ寸法で対をなして設けられ、かつ両保持部間に位置する流通路を有する部分の外側寸法と両保持部の厚さ寸法とが略等しくされたものであるキャップ付き液体容器。

【請求項６】　請求項４もしくは請求項５に記載のキャップ付き液体容器において、前記保持部は内部が中空とされたものであるキャップ付き液体容器。

【請求項７】　請求項１もしくは請求項６のいずれか１項に記載のキャップ付き液体容器において、前記キャップは前記薄肉部を含む突部先端部全体を覆うがキャップの開口端は閉塞されていないものであるキャップ付き液体容器。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は内容液を他に注入するための可撓性液体容器に関するものであり、特に容器本体部の内容液導出用突部を保護すると共に使用時無菌状態で開封し得るようにした液体容器に関するものである。本発明は、例えば輸液投与時に他の薬液を混注する場合に使用すれば特に有効である。

【０００２】

【従来の技術】従来より他に内容液を注入するために、

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注射針や管路を連結できるようにした液体容器の内容液導出用突部は、突部自体が先端部で閉塞され、ねじ切ることにより開封するようにされているが通例である。例えば、特開平８－２９９４３７号の注射器等がこれに該当する。

【０００３】

【発明が解決しようとする課題】ところが、このような容器は通常内容液の充填後滅菌して容器外面を無菌となるようにされてはいるが、使用時容器を包材から取り出すときや容器突部をねじ切って開封したりするとき等に手指が、容器突部先端側の注射針等を接続する部分に触れ、細菌等により汚染されるおそれがあるという問題点があった。また、容器の輸送時や保管時に上記包材が破損して前記注射針等を接続する部分が汚染されるという問題点があった。本発明はこのような事情を背景としてなされたものであり、本発明の目的は、容器突部をねじ切って開封する使用時や輸送、保管時に前記注射針等を接続する部分に手指が触れないようにして細菌等による汚染を防止し得る液体容器を提供することである。

【０００４】

【課題を解決するための手段】このような目的を達成するためになされた本発明は、次のように構成される。

Ａ　可撓性を有する容器本体部に、内容液の流通可能な流通路を有する内容液導出用突部が突設され、かつ前記突部の先端部付近にはねじ切ることにより開封させ得る薄肉部と該薄肉部をねじ切るためのねじり用把持部が形成された液体容器において、前記薄肉部を含む突部先端部付近全体を少なくとも覆って密封するキャップを配置し、かつキャップ内側には前記ねじり用把持部に係合してねじり力を伝え得る伝達用係合部を設け、キャップをねじることにより薄肉部をねじ切り可能としたことを特徴とするキャップ付き液体容器。

Ｂ　前記Ａ項記載のキャップ付き液体容器において、前記ねじり用把持部は前記突部の先端に突設された板状突部であり、前記伝達用係合部は前記板状突部が嵌り得る凹部が形成された係合凹部あるいは前記板状突部を挟持し得る隙間を隔てて配置された１対の板状部を備えた挟持係合部であるキャップ付き液体容器。

Ｃ　前記Ａ項もしくはＢ項記載のキャップ付き液体容器において、前記内容液導出用突部の薄肉部より先端側に過剰の内容液と内容液中の空気とを収容するための上部空間をなす過剰充填室が形成されているキャップ付き液体容器。

Ｄ　前記Ａ項ないしＣ項のいずれか１項に記載のキャップ付き液体容器において、前記突部の基端部寄り部分の側方に指を掛けるための保持部が形成されているキャップ付き液体容器。

Ｅ　前記Ｄ項記載のキャップ付き液体容器において、前記保持部は前記突部の基端部寄り部分の両側に同じ厚さ寸法で対をなして設けられ、かつ両保持部間に位置する

流通路を有する部分の外側寸法と両保持部の厚さ寸法とが略等しくされたものであるキャップ付き液体容器。

Ｆ　前記Ｄ項もしくはＥ項に記載のキャップ付き液体容器において、前記保持部は内部が中空とされたものであるキャップ付き液体容器。

Ｇ　前記Ａ項～Ｆ項のいずれか１項に記載のキャップ付き液体容器において、前記キャップは前記薄肉部を含む突部先端部全体を覆うがキャップの開口端は閉塞されていないものであるキャップ付き液体容器。

【０００５】

【発明の実施の形態】以下本発明の実施例を記載した図面に基づいて、発明の実施の形態を詳細に説明する。図１は実施例の薬液容器を拡大して図示している。同図において８は液体容器としての薬液容器であり、１０はキャップである。液体容器８はプラスチックで一体に構成され、薬液を収容する容器本体部１２の一端側には、先端部が段付状の筒状部をなす内容液導出用突部１４が突設され、その内部を貫通する流通路１６により容器本体部１２内の薬液収容部に連通されている。前記段付状の筒状部は、先端部に近づく程径が細くなるようにされたテーパ状の第１筒状部１８と、第１筒状部１８の先端部より径の大きい第２筒状部２０とからなると共に両筒状部１８，２０の境目はややくびれた形状で肉厚が薄くされ、ねじ切ることが可能な薄肉部２２が形成されている。さらに、第２筒状部２０の先端部は閉塞されると共に、その外側先端には、ねじり用把持部としての板状突部２４が突設されている。なお、第１筒状部１８の基端部には、第２筒状部２０より径の大きいリング状の段付部２６が形成されている。

【０００６】そして、突部１４の基端寄りの部分の両側には１対の所定幅の保持部２８が一体に設けられており、保持部２８外側の中間部は保持部両端よりやや引っ込んだ形状をなしている。保持部２８は、使用時に指の掛かりをよくして、力を加え易くし、使用を容易にするという働きがある。保持部２８は図１（ハ）に示すように内部が中空をなすと共に、突部１４の両保持部２８間に位置する部分の外幅寸法は両保持部２８の厚さ（幅）寸法と略同じとされている。このように保持部２８を中空とすることにより幾分か弾性をもつようになり、使用時手の当たりがやわらかくなるという利点がある。また、保持部１８と両保持部１８間の突部の寸法を上述のようにすることにより、これらの両側が平坦に近くなり、製品ラベル等を貼付する場合貼付し易くなるという利点がある。なお、両保持部２８が突部１４の外周部に接する部分は、図１（ハ）に示すように肉厚が薄くされている。

【０００７】容器本体部１２は可撓性をもつように肉厚が薄くされ、指で突部１４の先端部側に向かって押し付けて引っ込ませることができるようにされている。なお、薬液容器８には、製造時薬液が充填されるが、容器

本体部１２を指で押しつぶすことにより内容液を排出できるようにされている。容器本体部１２は横断面が楕円状をなし、机上で転がりにくいように、また包装がなるべく嵩張らないようにされている。さらに、容器本体部１２の底面は平坦状をなしているが、底面部分の縦横の寸法はそれぞれ容器本体部の最大部分の縦横寸法の約１０～４０％となるようにされている。これにより、容器本体部１２を指でおしつぶす際、底面は十分な広さの平坦部を有するので指が痛くないという利点がある。薬液容器の製造は、容器の成形、薬液の充填、溶閉を連続的に行う、いわゆるブローフィルシール法によって無菌状態で能率よく行うことが可能である。

【０００８】一方、キャップ１０はプラスチックで構成され、図１に示すように一端が開口した円筒状の部材であり、開口端周縁にフランジ部が形成されると共に、他端側にはねじり用突部３０が設けられ、指で把持し易くし、キャップ１０自体をねじり易くされている。さらに、キャップ１０の内側には伝達用係合部としての挟持係合部３２が設けられ、板状突部２４に連結されてねじり力を薄肉部２２に伝え得るようにされている。挟持係合部３２は図１（ロ）に示すように１対の板状部が間隔を隔てて配置され、板状突部２４を挟持し得るようにされたものである。キャップ１０は、段付部２６が嵌り得る程度の内径を有し、その開口端内側に段付部２６を嵌め入れることによって第１筒状部１８、第２筒状部２０および板状突部２４を覆い、かつ密封した状態に取りつけられる。こうして、キャップ１０の内部は、使用時まで外部からの細菌や汚染物質等の侵入が遮断される。なお、キャップ１０の段付部２６に対する嵌合は、互いに回転可能な程度とされている。従って、キャップ１０をねじると、挟持係合部３２を介して板状突部２４がねじられ、薄肉部２２がねじ切られて、薬液容器８内の内容液が外部に流出され得る状態となる。

【０００９】薬液容器８内には、薬液が充填されるが、図２に示すように突部１４側を上にして立てた際第２筒状部２０内に、過剰の内容液と内容液中の空気が収容できるようにされており、第２筒状部２０はいわゆる過剰充填室をなしている。

【００１０】以上のように構成された実施例の薬液容器は、図２（イ）に示すように突部１４を上に立ててから保持部２８を指で把持し、図２（ロ）に示すようにキャップ１０をねじると、薄肉部２２がねじ切れ、流通路が開封されるので、図２（ハ）に示すようにキャップ１０を取り除くと、第１筒状部１８に注射針等を取りつけ得る状態となる。注射針を輸液容器（図示省略）の口部に差し込み、次いで、容器本体部１２を手の指等で摘み、図２（ニ）に示すように押し潰すと内容液（薬液）は輸液容器内に流出し、輸液と配合される。点滴回路内に薬液を配合する場合には、点滴回路の側管等に注射針を刺し込んでから、以下同様な要領により内容液（薬液）が

注入され、配合される。また、管路を介して内容液を送給する場合には、第１筒状部１８を管路に差し込み接続してから同様な要領により送給する。

【００１１】上記実施例では、薄肉部２２を含む突部１４は、キャップ１０により覆われ、密封されているので、輸送時、保管時等に破損したり、細菌等により汚染されたりすることを防止できる利点がある。また、キャップ１０を介して薄肉部２２をねじ切って突部１４を開封させるので、注射針や管路を接続する部分（薄肉部２２に連なる部分）が開封時に直接手指が触れることがなく、細菌等による汚染が防止できる利点があり、さらに突部１４の薄肉部２２より先端側部分は過剰充填室とされているので、薄肉部２２をねじ切って突部１４を開封したとき、内容液中の空気は除かれているので、注射針や管路を接続する際あらかじめ液中の空気を除く手間が不要となり、使用が容易となる利点がある。さらに、保持部２８は次のような効果である。すなわち、図２（ロ）に示すようにキャップ１０をねじる際や、図２（ハ）に示すように薄肉部２２がねじ切らてそれより先端部が除かれている状態の第１筒状部１８に注射針、管路等を接続する場合や、図２（ニ）に示すように容器本体部１２を押し潰す場合には、保持部２８に指を掛けて行うと、この作業が非常に容易に行い得るという利点がある。

【００１２】薬液容器は、従来のこの種容器と同様に医療用容器として容認されたプラスチックが用いられる。特に、ポリエチレン、ポリプロピレン等のポリオレフィンは、成形性が優れていることと安全性が確立している点で好ましい。上記ポリエチレンとしては、エチレンのホモポリマーに加え、プロピレン、１－ブテン、４－メチル－１－ペンテン、オクテン等のα－オレフィンとの共重合体も使用可能である。また、該共重合体は直鎖状であっても分岐鎖状であってもいずれでもよい。ポリエチレンは、高密度であるか低密度であるかを問わず、広い範囲より適宜選択できる。また、上記ポリプロピレンとしては、ホモポリマーあるいはエチレン、１－ブテン等の少量（一般に１０重量%以下、好ましくは５重量%以下）のオレフィンとの共重合体が利用可能で、医療用容器として汎用されているグレードのものを用いるのが好適である。さらに、ポリ１－ブテンやポリ４－メチル－１－ペンテン等のポリオレフィン、さらにはエチレン・テトラシクロドデセンコポリマー等の環状オレフィンコポリマーやスチレン・エチレン・ブチレン・スチレンブロックコポリマー等のスチレン系コポリマーも適宜採用可能である。上記ポリオレフィンは、単独で用いても混合樹脂または多層成型として用いてもよい。必要に応じて、遮光性を付与したり、アルミやシリカ蒸着加工を施すこともできる。キャップは薬液容器と同種のプラスチックを用いてもよい。

【００１３】薬液容器内に収容する薬剤としては、特に限定されない。例えば、生理的食塩液、蒸留水等の溶解液、ビタミン液、微量元素製剤液、脂肪乳剤液、補正用塩化カルシウム液等に加え、ヘパリンナトリウム液等の血液凝固阻止剤、ベントバルビタール、塩酸ブロカイン等の全身または局所麻酔剤、臭化カルシウム等の鎮静剤、サリチル酸ナトリウム等の解熱鎮痛消炎剤、塩酸ドパミン等の強心剤、塩酸ニカルジピン等の消化性潰瘍剤、リン酸ヒドロコルチゾンナトリウム等のホルモン剤等の薬剤の液を例示できる。

【００１４】上記実施例では、第２筒状部からなる過剰充填室を設けているがこれを中止することも可能である。また、実施例ではキャップ１０の開口端を段付部２６に嵌め入れてキャップ１０内を密封するようにされているが、第２筒状部２０を中止し、突部１４の薄肉部２２より先端部側にキャップ１０を嵌め込み、薄肉部２２を覆うが、キャップ１０の開口端は閉塞しないようにすることも可能である。この場合においても、輸送時や保管時に薄肉部２２を破損等から保護する効果はある。また、上記実施例では、キャップ１０によるねじ切り開封機構は、内容液導出用突部１４の薄肉部２２寄り先端部側に設けた板状突部２４とキャップ１０内側の挟持係合部３２との係合によるものであるが、これに代えてをキャップ１０の内側と内容液導出用突部１４の前記先端部を接着剤等で固着する方法を採用することもできる。さらに、上記実施例の容器本体部は図１に示す形状のものに限定されず、指で押し潰すことにより内容液を排出できるものであれば種々の形状、構造を採用できる。また、本実施例の容器は、薬液に限定されず、使用時配合する他の液体を収容する場合にも使用できる。例えば、使用時配合する２液性の接着剤を収容する場合等にも使用可能である。以上本発明の実施例について説明したが、本発明はこのような実施例に何ら限定されるものではなく、本発明の要旨を逸脱しない範囲において種々なる態様で実施し得ることはもちろんである。

【００１５】

【発明の効果】本発明は上述のように構成されているので、次に記載する効果を奏する。内容液導出用突部の薄肉部を含む突部の先端部付近をキャップで覆い、かつ密封することによって、注射針や管路等を差し込んで連結すべき突部の先端部付近が輸送時や保管時に細菌等により汚染されることが防止できる。また、薄肉部はキャップにより覆われるので、輸送時等において薄肉部が破損することから保護される。さらに、キャップの外側から突部の薄肉部をねじ切って開封させるので、開封時に容器の注射針や管路等を差し込んで連結すべき突部を手指で触れることがなく、細菌等による汚染が防止され、衛生的で安全性が向上する。また、突部の薄肉部より先端側の部分を、過剰の内容液と内容液中の空気とを収容し得る空間部を有する過剰充填室とすることにより、薄肉部でねじ切って突部を開封させたときには、内容液中の

空気は除かれるので、注射針や管路を接続する際、あらかじめ液中の空気を除く作業が不要となり、使用が容易となる。さらにまた、前記突部の基端部寄りの部分の側方に指を掛け得る保持部を設けることにより、開封時や開封後に注射針等の接続時に力が加え易く使用が容易となる。また、対をなす保持部間の突部の外側寸法と両保持部の厚さ寸法を略等しくすれば、その外側は略平坦状となり製品ラベル等を貼付し易くなるという利点がある。さらに、保持部を中空とすれば、弾性をもち使用時手の当たりがやわらかくなるという利点がある。

【図面の簡単な説明】

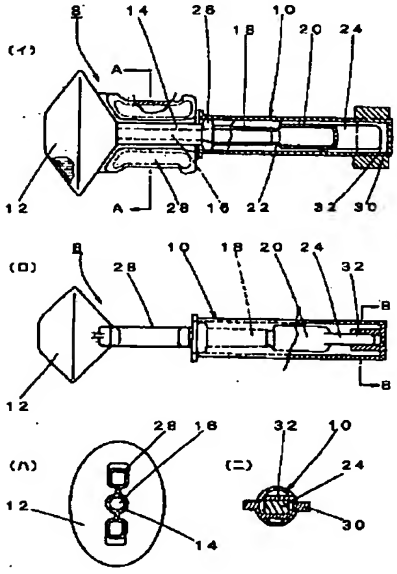
【図１】（イ）～（ニ）は、本発明の一実施例を示す一部を破断した正面図、平面図、同図（イ）におけるＡ－Ａ断面図および同図（ロ）におけるＢ－Ｂ断面図である。

＊【図２】（イ）～（ニ）は同実施例の使用状態を示す説明図である。

【符号の説明】

８　薬液容器（液体容器）
１０　キャップ
１２　容器本体部
１４　内容液導出用突部
１６　流通路
１８　第１筒状部
２０　第２筒状部
２２　薄肉部
２４　板状突部（ねじり用把持部）
２８　保持部
３０　ねじり用突部
３２　挟持係合部（伝達用係合部）

【図１】



【図２】